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document 09.08.1, 10.19.2, 08.05.1, 08.06.2, 13.18.3 Young massive stars in the ISOGAL survey I. VLA observations of the ISOGAL l=+45 field Leonardo Testi1,2, Marcello Felli1 and Gregory B. Taylor3 Testi: Arcetri, lt@arcetri.astro.it Osservatorio Astrofisico di Arcetri, Largo E. Fermi 5, I-50125 Firenze, Italy Division of Physics, Mathematics and Astronomy, California Institute of Technology, MS 105-24, Pasadena, CA 91125, USA National Radio Astronomy Observatory, P.O. Box O, Socorro, NM 87801, USA Received xxxx; accepted xxxx L. Testi et al.: VLA observations of the ISOGAL l=+45 fieldL. Testi et al.: VLA observations of the ISOGAL l=+45 field abstract

We present VLA radio continuum observations at 3.6 and 6 cm of a ∼0.65 sq. deg. field in the galactic plane at $l = +45°$. These observations are meant to be used in a comparison with ISO observations at 7 and 15 μm of the same region. In this paper we compare the radio results with other radio surveys and with the IRAS-PSC.

At 3.6 and/or 6 cm we detect a total of 34 discrete sources, 13 of which are found in five separate extended complexes. These are all multiple or single extended thermal ultra-compact HII (UCHII) regions. While for each of these complexes an IRAS counterpart could be reliably found, no IRAS counterpart could be reliably identified for any of the remaining 21 sources. Of these 21 compact sources, six are candidate UCHII regions, and the other 15 are most probably background extragalactic non-thermal sources.

The five IRAS sources associated with the radio continuum complexes all satisfy the Wood & Churchwell (WC89; WC89) color criteria for UCHII. None of the other 38 IRAS point sources present in our surveyed field show the same colors. This fraction of WC89 type to total IRAS sources is consistent with what is found over the entire galactic plane. The fact that, when observed with a compact VLA configuration, the IRAS sources with "UCHII colors" are found to be associated with arcminute-scale extended sources, rather than with compact or unresolved radio sources, may have important implications on the estimated lifetime of UCHII regions.

HII regions - Galaxy: stellar content - Stars: early-type - Stars: formation - Radio continuum: ISM